



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

*[Handwritten Signature]*

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,812	03/29/2004	Keiji Tsukada		9711
7590 MATTINGLY, STANGER & MALUR, P.C. Suite 370 1800 Diagonal Road Alexandria, VA 22314			EXAMINER	
			LARYEA, LAWRENCE N	
			ART UNIT	PAPER NUMBER
			3768	
			MAIL DATE	DELIVERY MODE
			10/09/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/810,812	TSUKADA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Lawrence N. Laryea	3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 10 July 2007.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 26 and 27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 26 and 27 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 03/29/2004 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                        |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/10/07 03/29/04 07/14/06</u> . | 6) <input type="checkbox"/> Other: _____.  |

## DETAILED ACTION

**Examiner acknowledges Applicant's amendment and remarks filed July 10, 2007.**

Claims 26 and 27 are now pending. The Examiner acknowledges the amendments to Claims 26 and 27..

Applicant's arguments with respect to the rejection(s) of claim(s) 1-16 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made.

### ***Information Disclosure Statement***

**Examiner acknowledges all the certified copies of the priority document in prior application.**

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Byram (Patent 4492923)** in view of **Tomita et al (Patent 5601081)**.

3. Re Claims 26 and 27: **Byram** discloses a method for estimating magnetic field source of a motion of an object (**See Col. 2 Lines 5-17 and Abstract**) steps which is

capable of measuring a magnetic field component ( $B_z(x,y,t)$ ) direction of a magnetic field generated by a body by using a plurality of superconducting quantum interference devices (**See Col. 7 Lines 18-20**) wherein a plane parallel to the surface of the body corresponds to the xy plane of a Cartesian coordinate system and a direction perpendicular to the surface of the body corresponds to z axis of the Cartesian coordinate system; capable of determining a value proportional to a root (**See Col. 2 Lines 21-40**) of magnetic field component ( $B_z(x,y,t)$ ) in the z axis direction (**field along the direction of the motion which could be X or Y or Z**).

4. **Byram** discloses the above claimed invention, however **Byram** does not disclose that the method includes estimating a magnetic field source comprising the steps of: measuring a magnetic field component ( $B_z(x,y,t)$ ) in a z axis direction of a biomagnetic field generated from a living body , displaying the isomagnetic field map; and solving an inverse problem for estimating a position and a magnitude of a magnetic field source within said living body and includes calculation of magnetic fields at a plurality of positions (x,y) where said biomagnetic fields are detected.

5. **Tomita et al (Patent 5601081)** disclose a method for estimating magnetic field source comprising the steps of measuring a magnetic field component ( $B_z(x,y,t)$ ) in a z axis direction of a biomagnetic field generated from a living body , displaying the isomagnetic field map (**See Col. 8 Lines 45-56 and Figure 1**), solving an inverse problem for estimating a position and a magnitude of a magnetic field source within said living body (**See Col. 2 Lines 1-46**) and calculating of magnetic fields at a plurality of positions where the biomagnetic fields are detected (**See Col. 3 Lines 17-39**).

6. **Tomita et al** teach also isomagnetic field for connecting points of magnetic fields at desired equal values (See Figures 21-22,26,26,28,29,31,34,34)

It would have been obvious to one having ordinary skill in the art at the time invention was made to modify the method for estimating magnetic field source of motion of an object similar to that of **Byram** to include the steps of measuring a magnetic field component ( $B_z(x,y,t)$ ) in a z axis direction of a biomagnetic field generated from a living body, displaying the isomagnetic field, solving an inverse problem for estimating a position and a magnitude of a magnetic field source within said living body and calculating of magnetic fields at a plurality of positions where the biomagnetic fields are detected similar to that of **Tomita et al** in order to examine or measure a motional objects in a human body such as the heart and brain with high precision (See Col. 3, lines 9-12) as taught by **Tomita et al**.

### **Conclusion**

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence N. Laryea whose telephone number is 571-272-9060. The examiner can normally be reached on 9:30 a.m.-5:30 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eleni Mantis-Mercader can be reached on 571-272-4740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LNL

6. **Tomita et al** teach also isomagnetic field for connecting points of magnetic fields at desired equal values (See Figures 21-22,26,26,28,29,31,34,34)

It would have been obvious to one having ordinary skill in the art at the time invention was made to modify the method for estimating magnetic field source of motion of an object similar to that of **Byram** to include the steps of measuring a magnetic field component ( $B_z(x,y,t)$ ) in a z axis direction of a biomagnetic field generated from a living body, displaying the isomagnetic field, solving an inverse problem for estimating a position and a magnitude of a magnetic field source within said living body and calculating of magnetic fields at a plurality of positions where the biomagnetic fields are detected similar to that of **Tomita et al** in order to examine or measure a motional objects in a human body such as the heart and brain with high precision (See Col. 3, lines 9-12) as taught by **Tomita et al**.

### **Conclusion**

**Tsukada et al (Patent 6230037) and Kado et al (Patent 5206589)** teach of estimating magnetic field using peaks to obtain desired results.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence N. Laryea whose telephone number is 571-272-9060. The examiner can normally be reached on 9:30 a.m.-5:30 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eleni Mantis-Mercader can be reached on 571-272-4740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LNL

  
BRIAN L. CASLER

CUSTODIAN OF PATENT DOCUMENTS  
U.S. PATENT AND TRADEMARK OFFICE